

Title (en)  
METHOD AND SYSTEM FOR PRE-PURIFICATION OF A FEED GAS STREAM

Title (de)  
VERFAHREN UND SYSTEM ZUR VORREINIGUNG EINES SPEISEGASSTROMS

Title (fr)  
PROCÉDÉ ET SYSTÈME POUR LA PRÉ-PURIFICATION D'UN FLUX DE GAZ D'ALIMENTATION

Publication  
**EP 3980161 A1 20220413 (EN)**

Application  
**EP 21745647 A 20210630**

Priority  
• US 202063067539 P 20200819  
• US 202117361395 A 20210629  
• US 2021039761 W 20210630

Abstract (en)  
[origin: US2022054976A1] A system and method of pre-purification of a feed gas stream is provided that is particularly suitable for pre-purification of a feed air stream in cryogenic air separation unit. The disclosed pre-purification systems and methods are configured to remove substantially all of the hydrogen, carbon monoxide, water, and carbon dioxide impurities from a feed air stream and is particularly suitable for use in a high purity or ultra-high purity nitrogen plant. The pre-purification systems and methods preferably employ two or more separate layers of hopcalite catalyst with the successive layers of the hopcalite separated by a zeolite adsorbent layer that removes water and carbon dioxide produced in the hopcalite layers.

IPC 8 full level  
**B01D 53/04** (2006.01); **B01D 53/047** (2006.01); **B01D 53/86** (2006.01)

CPC (source: CN EP IL KR US)  
**B01D 53/0407** (2013.01 - IL KR US); **B01D 53/0415** (2013.01 - CN IL); **B01D 53/0446** (2013.01 - CN IL); **B01D 53/0462** (2013.01 - EP IL); **B01D 53/047** (2013.01 - EP IL KR); **B01D 53/261** (2013.01 - CN IL US); **B01D 53/28** (2013.01 - IL US); **B01D 53/86** (2013.01 - CN IL); **B01D 53/864** (2013.01 - CN EP IL KR US); **B01D 53/8671** (2013.01 - CN EP IL US); **B01D 53/869** (2013.01 - EP IL KR US); **B01J 20/08** (2013.01 - IL US); **B01J 20/18** (2013.01 - IL US); **B01J 23/8892** (2013.01 - IL US); **B01D 53/261** (2013.01 - EP); **B01D 2253/104** (2013.01 - EP IL KR US); **B01D 2253/108** (2013.01 - EP IL KR US); **B01D 2253/25** (2013.01 - IL US); **B01D 2255/1023** (2013.01 - EP IL KR); **B01D 2255/2073** (2013.01 - EP IL KR US); **B01D 2255/20761** (2013.01 - EP IL KR US); **B01D 2255/2092** (2013.01 - IL KR); **B01D 2255/40** (2013.01 - IL US); **B01D 2255/9022** (2013.01 - EP IL US); **B01D 2255/9025** (2013.01 - EP IL US); **B01D 2255/9027** (2013.01 - IL US); **B01D 2257/108** (2013.01 - CN EP IL KR US); **B01D 2257/404** (2013.01 - EP IL); **B01D 2257/502** (2013.01 - CN EP IL KR US); **B01D 2257/504** (2013.01 - CN EP IL KR US); **B01D 2257/702** (2013.01 - EP IL); **B01D 2257/80** (2013.01 - CN EP IL KR US); **B01D 2258/06** (2013.01 - EP IL); **B01D 2259/40052** (2013.01 - EP IL); **B01D 2259/40081** (2013.01 - EP IL); **B01D 2259/4009** (2013.01 - EP IL); **B01D 2259/402** (2013.01 - EP IL); **B01D 2259/4145** (2013.01 - EP IL); **Y02C 20/10** (2013.01 - EP IL); **Y02C 20/40** (2020.08 - EP IL)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**US 11666861 B2 20230606**; **US 2022054976 A1 20220224**; CN 114450078 A 20220506; EP 3980161 A1 20220413; EP 4094821 A1 20221130; IL 289045 A 20220201; IL 289045 B1 20240401; KR 102436871 B1 20220829; KR 20220024462 A 20220303; MY 194151 A 20221116; TW 202218741 A 20220516; US 11826703 B2 20231128; US 2023042248 A1 20230209; US 2023249130 A1 20230810; WO 2022039840 A1 20220224

DOCDB simple family (application)  
**US 202117361395 A 20210629**; CN 202180004216 A 20210630; EP 21745647 A 20210630; EP 22020297 A 20210630; IL 28904521 A 20211215; KR 20227000765 A 20210630; MY PI2021007639 A 20210630; TW 110124970 A 20210707; US 2021039761 W 20210630; US 202217959360 A 20221004; US 202318304921 A 20230421